

1-711-
(8-10) + (12-14)

(330) 376
1242

29

10/6/3,197

Morgan 7/03/03 Filing date

Dorwig 7/3/03

CLAIMS

What is claimed is:

- 1 1. A floor cleaning unit comprising:
 - 2 at least one PVC/NBR component selected from the group consisting of
 - 3 seals, mounts, tubing, and contact members, said PVC/NBR component including
 - 4 a polyvinyl chloride base resin and, based upon 100 parts by weight of said
 - 5 polyvinyl chloride base resin:
 - 6 (a) from about 10 to about 50 parts nitrile rubber, as an impact
 - 7 modifier;
 - 8 (b) from about 30 to about 100 parts plasticizer; and
 - 9 (c) from about 1 to about 4 parts polyvinyl chloride stabilizer.
- 1 2. A floor cleaning unit comprising:
 - 2 a contact member including a polyvinyl chloride base resin; and
 - 3 based upon 100 parts by weight of said polyvinyl chloride base resin:
 - 4 (a) from about 20 to about 40 phr nitrile rubber,
 - 5 (b) from about 60 to about 100 phr plasticizer,
 - 6 (c) from about 1 to about 5 phr polyvinyl chloride stabilizer,
 - 7 (d) from about 10 to about 15 phr epoxide plasticizer,
 - 8 (e) from about 0.05 to about 0.4 phr internal lubricant, and
 - 9 (f) from about 0.7 to about 1.5 phr external lubricant.
- 1 3. A floor cleaning unit of claim 2, wherein, based upon 100 parts by weight of said
2 polyvinyl chloride base resin, said contact member includes:
 - 3 (a) from about 25 to about 35 phr nitrile rubber,
 - 4 (b) from about 70 to about 90 phr plasticizer,
 - 5 (c) from about 2 to about 4 phr polyvinyl chloride stabilizer,
 - 6 (d) from about 12 to about 14 phr epoxide plasticizer,
 - 7 (e) from about 0.1 to about 0.3 phr internal lubricant, and
 - 8 (f) from about 0.8 to about 1.2 phr external lubricant.

Mark Weber
(330) 376-1242

1 4. The floor cleaning of claim 3, wherein, based upon 100 parts by weight of said
2 polyvinyl chloride base resin, said contact member includes:

- 3 (a) 30 phr nitrile rubber,
4 (b) about 80 phr plasticizer,
5 (c) about 3 phr polyvinyl chloride stabilizer,
6 (d) about 13 phr epoxide plasticizer,
7 (e) about 0.2 phr internal lubricant, and
8 (f) about 1,05 phr external lubricant.

1 5. A floor cleaning unit comprising:

2 a sealing member including a polyvinyl chloride base resin; and
3 based upon 100 parts by weight of said polyvinyl chloride base resin:

- 4 (a) from about 20 to about 40 phr of nitrile rubber,
5 (b) from about 60 to about 100 phr of plasticizer,
6 (c) from about 1 to about 5 phr of polyvinyl chloride stabilizer, and
7 (d) from about 10 to about 15 phr of epoxide plasticizer.

1 6. The floor cleaning unit of claim 5, wherein, based upon 100 parts by weight of said
2 polyvinyl chloride base resin, said sealing member includes:

- 3 (a) from about 25 to about 35 phr of nitrile rubber,
4 (b) from about 70 to about 90 phr of plasticizer,
5 (c) from about 2 to about 4 phr of polyvinyl chloride stabilizer, and
6 (d) from about 12 to about 14 phr of epoxide plasticizer.

1 7. The floor cleaning unit of claim 6, wherein, based upon 100 parts by weight of said
2 polyvinyl chloride base resin, said sealing member includes:

- 3 (a) about 30 phr of nitrile rubber,
4 (b) about 80 phr of plasticizer,
5 (c) about 3 phr of polyvinyl chloride stabilizer, and
6 (d) about 13 phr of epoxide plasticizer.

- 1 8. A floor cleaning unit comprising:
2 a foamed sealing member including a polyvinyl chloride base resin, and,
3 based upon 100 parts by weight of said polyvinyl chloride base resin:
4 (a) from about 20 to about 40 phr of nitrile rubber,
5 (b) from about 75 to about 125 phr of plasticizer,
6 (c) from about 1 to about 5 phr of polyvinyl chloride stabilizer,
7 (d) from about 10 to about 15 phr of epoxide plasticizer,
8 (e) from about 0.5 to about 1.5 phr of blowing agent.
- 1 9. The floor cleaning unit of claim 8, wherein, based upon 100 parts by weight of said
2 polyvinyl chloride base resin, said foamed sealing member includes:
3 (a) from about 25 to about 35 phr of nitrile rubber,
4 (b) from about 85 to about 95 phr of plasticizer,
5 (c) from about 2 to about 4 phr of polyvinyl chloride stabilizer,
6 (d) from about 12 to about 14 phr of epoxide plasticizer,
7 (e) from about 0.75 to about 1.25 phr of blowing agent.
- 1 10. The floor cleaning unit of claim 8, wherein, based upon 100 parts by weight of said
2 polyvinyl chloride base resin, said foamed sealing member includes:
3 (a) about 30 phr of nitrile rubber,
4 (b) about 100 phr of plasticizer,
5 (c) about 3 phr of polyvinyl chloride stabilizer,
6 (d) about 13 phr of epoxide plasticizer,
7 (e) about 1 phr of blowing agent.
- 1 11. A floor cleaning unit comprising:
2 tubing including a polyvinyl chloride base resin; and
3 based upon 100 parts by weight of said polyvinyl chloride base resin:
4 (a) from about 20 to about 40 phr of NBR;
5 (b) from about 50 to about 80 phr of plasticizer;
6 (c) from about 1 to about 5 phr of PVC stabilizer;
7 (d) from about 3 to about 8 phr of epoxide plasticizer;

- 8 (e) from about 5 to about 15 phr filler;
9 (f) from about 0.05 to about 0.4 phr internal lubricant; and
10 (g) from about 0.5 to about 1.2 phr external lubricant.

- 1 12. A process for producing a soft durometer polyvinyl chloride compound comprising
2 the sequential steps of:
3 adding PVC resin to a mixer and heating, under agitation, to a temperature
4 of from about 140°F to about 170°F;
5 adding plasticizer and stabilizer to the PVC resin and raising the
6 temperature to from about 185°F to about 195°F;
7 adding at least one ingredient selected from fillers, blowing agents,
8 pigments, internal lubricants and external lubricants and raising the temperature
9 to from about 220°F to about 240°F
10 transferring the resultant mixture to a cooling mixer and lowering the
11 temperature to the range of from about 120°F to about 70°F;
12 adding nitrile rubber to the cooled mixture; and
13 feeding the resultant nitrile rubber mixture to an extruder to shear and fuse
14 the mixture at a temperature of from about 280°F to about 350°F.

- 1 13. The process of claim 12, further comprising the step of:
2 pelletizing the nitrile rubber mixture at the extruder.

- 1 14. The process of claim 13, further comprising the step of:
2 forming the pellets into an element of a floor cleaning unit; the element
3 being selected from the group consisting of sealing members, mounts, tubing and
4 contact members.